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CURRENT LITERATURE.

BOOK REVIEWS.

Engler and Prantl's *Pflanzenfamilien*.

THIS great work has been noticed from time to time in the BOTANICAL GAZETTE as the various parts have appeared. But now that Volumes II-IV are complete, which contain the siphonogams, the time seems appropriate for a more extended notice. The first part appeared in 1887, and twelve years later the three volumes of siphonogams were finished. The publication of the three volumes of Bentham and Hooker's *Genera Plantarum*, covering the same ground, but with no such breadth of treatment, extended from 1862-1883, a period of twenty-one years. There is no definite statement as to the completion of Volume I, devoted to cryptogams, but several sections of it have been published, and other parts are appearing with reasonable rapidity.

So far as statistics are concerned, it may be of interest to note that, excluding the indexes and the cryptogams, there are twenty-six sections of the work, each with its separate index, and forming handy laboratory volumes. The number of genera treated by the fifty-seven collaborators is 8218. The pages are 6997 in number, the original illustrations 3026 (woodcuts 3023, heliogravures 3), and the individual figures 19,366. The total price is *M* 436, or bound in eleven half morocco volumes *M* 474.50.

When one considers such details he is impressed by the magnitude of the work, and still more by the organizing power which has kept the large plans in operation through so many years. The editorial work must have been enormous, to bring contributions necessarily heterogeneous into a reasonable degree of uniformity. But while the details are impressive they do not indicate the importance of the work. That it marks an epoch in taxonomic publications does not need to be stated as a prophecy, for during its publication it has achieved this distinction. Lists, manuals, and herbaria were using the Engler and Prantl sequence long before the work was complete. This was due to the fact that it sought to relate plant groups upon the basis of what is known concerning them, and discarded the old groupings which had long been the laughing stock of biologists. In other words, this great work breathes into taxonomy the modern biological spirit, and makes it more than a set of names.

Superior to all previous general works in its spirit, it is alone in the number and beauty of its illustrations. Every family is thoroughly and

admirably illustrated, and we venture the prediction that many of these figures will become classic in future texts. No such collection of figures representing the plant kingdom exists, and they give a conception of plants in general that can be obtained from no other publication. The figures and text include not merely those structures which may be said to have taxonomic importance, but anatomical peculiarities of each family are set forth. All through the work the ecological standpoint is prominent, and the sections on geographical distribution are among the most valuable.

It is to be expected that the treatment is unequal, and the different parts of very different degrees of merit, but with fifty-seven collaborators this could not be avoided. It seems to most botanists far more important to complete a work within a reasonable time, and so establish a usable datum-line, than to drag it out indefinitely and allow one part to be out of date before another is published. In general the treatment will be regarded as conservative, there being apparent no desire for change if existing lines can be used at all. In so delicate a matter as nomenclature, as is well known, the "Berlin rules," which are in fact the Engler rules, are drawn up in the spirit of compromise, not going to either extreme, and probably satisfying neither set of extremists. No set of rules proposed, however, has had as yet such a tremendous advantage of general usage as this great work will compel for the Berlin rules.

It is impossible to mention in detail the views advanced as to the evolution of plant groups. There will be much difference of opinion as to minor points, for many smaller groups, through lack of adequate investigation, had to be "lumped," but in the judgment of the reviewer the main lines of evolution suggested will stand, which are in brief as follows: spiral arrangement and indefinite numbers to cyclic arrangement and definite numbers; naked flowers to differentiation of calyx and corolla; apocarpy to syncarpy; polypetaly to sympetaly; hypogyny to epigyny; actinomorphy to zygomorphy. That cases of "reduced flowers" occur there can be no doubt, but that the great majority of so-called cases of reduction are really primitive in character seems hardly less doubtful.—J. M. C.

Ferments and fermentation.

THE attention which the various problems connected with fermentation have received during the past decade and the interest, both theoretical and practical, which attaches to the investigation of these problems make doubly welcome a book on the soluble ferments from the hand of Professor J. Reynolds Green.¹ In it he has sought to bring together, so far as possible, the results already reached, and to indicate the view of the processes of

¹ GREEN, J. REYNOLDS: The soluble ferments and fermentation. 8vo. pp. xiv + 480. Cambridge: The University Press. 1899. 12 s. [New York: The Macmillan Company.]